

Total No. of printed pages = 6

**END SEMESTER EXAMINATION-2019**

Semester – 4th

Subject Code : FPT-403

**BASICS OF FOOD CHEMISTRY**

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

**Instructions :**

1. *All* questions of PART-A are compulsory.
2. Answer any *five* questions from PART-B.

**PART – A**

Marks – 25

1. Fill in the blanks : 1×10=10
  - (a) If  $n = 5$ , then the formula of carbohydrate is \_\_\_\_\_.
  - (b) An example of Omega 3 fatty acid is \_\_\_\_\_.
  - (c) \_\_\_\_\_ is also known as invert sugar.

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- (d) Molecules that are made of one molecule of glycerol and three fatty acids are called \_\_\_\_\_.
- (e) \_\_\_\_\_ is an example of non-reducing sugar.
- (f) The most common monomer of carbohydrate is \_\_\_\_\_.
- (g) If OH group is to left of last stereocentre carbon, then configuration is \_\_\_\_\_.
- (h) The monomer of proteins is the \_\_\_\_\_.
- (i) Disulphide bonds are formed between \_\_\_\_\_.
- (j) Lipids are soluble in \_\_\_\_\_.
2. Write true or false : 1×10=10
- (a) An amino acid is an amphoteric molecule.
- (b) Is maltose a reducing sugar ?
- (c) Are all vitamins soluble in water ?
- (d) A fat is solid at ordinary room temperature.
- (e) Vitamin C is known as folic acid.
- (f) Is glycine an essential amino acid ?
- (g) The type of bond that is formed between the two sugars is called ester bond.



- (h) If the sugar has an aldehyde group, it is known as an aldose.
- (i) Cellulose is also known as animal starch.
- (j) If the compound rotates plane polarized light to the right, it is called levorotatory.

3. Choose the correct answer : 1×5=5

- (a) The epimers of glucose
- (i) Fructose                      (ii) Galactose
- (iii) Ribose                        (iv) Deoxyribose
- (b) Name the reagent which is used in Saponification.
- (i) Ammonia                      (ii) Acetic acid
- (iii) NaOH/KOH                  (iv) Butanone
- (c) What is the solubility of lipids in water ?
- (i) Soluble                        (ii) Partially soluble
- (iii) Insoluble                    (iv) Partially insoluble
- (d) Which of the following is not a fat-soluble vitamin ?
- (i) Vitamin D                      (ii) Vitamin K
- (iii) Vitamin C                    (iv) Vitamin A



(e) Choose the monounsaturated fatty acid out of the following :

- (i) Oleic acid
- (ii) Linoleic acid
- (iii) Linolenic acid
- (iv) Stearic acid.

PART - B

Marks - 45

4. (a) What is peptide bond ? Show the formation of a dipeptide bond. 3

(b) Define water activity. Write the importance of water activity in food. 3

(c) What are D and L-isomers ? Draw the structure of D-glucose. 3

5. (a) Classify oligosaccharides giving suitable examples. 4

(b) Explain caramelization and its consequences. 3

(c) Write two important characteristics of amino acids. 2

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(4)

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6. (a) What are food additives ? Write the functions of food additives. 3

(b) What are fatty acids ? Name the different types of fatty acids. 3

(c) Explain why food enzymes are important. 3

7. Differentiate between any three : 3×3=9

(a) Amylose and amylopectin.

(b) Saturated and unsaturated fatty acid.

(c) Homopolysaccharide and heteropolysaccharide.

(d) Reducing and non-reducing sugar.

(e) Essential and non-essential amino acids.

8. (a) How can lipids be classified ? 4

(b) What are the different principal pigments responsible in plants ? 3

(c) Write the important properties of carbohydrates. 2

9. (a) Explain in brief how are proteins denatured. 4

(b) What causes rancidity in oily food stuff ? 3

(c) What is MUFA ? 2

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(5)

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10. Write brief notes on any *three* :  $3 \times 3 = 9$

- (a) Maillard reaction
- (b) Polysaccharides
- (c) Saponification
- (d) Tertiary structure of protein
- (e) Free water.

